

Abstract Submitted
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Characterization of aerogel and Photomultiplier Tubes for the 12-GeV Hall C Kaon Aerogel Detector at Jefferson Lab¹ KEVIN WOOD, University of South Carolina — Thomas Jefferson National Accelerator Facility's upgrade from 6-GeV to 12-GeV beam energy requires a new magnetic spectrometer for Hall C. At 6 GeV the High Momentum Spectrometer (HMS) made use of an aerogel threshold Cherenkov detector for particle identification of p/K/p. The HMS is not designed to operate at momenta greater than 7 GeV/c, instead a Super High Momentum Spectrometer (SHMS) will be constructed. An aerogel threshold Cherenkov detector needs to be included in the new spectrometer as well. Pions, kaons and protons of sufficient velocity produce Cherenkov radiation when passing through media with low indices of refraction. Aerogels with $n = 1.020$ and $n = 1.030$ will be used for p/K/p separation. A diffusion box, lined with millipore, will collect the light from the Cherenkov radiation. Photomultiplier tubes (PMTs) will then detect the light and convert the photons into an electrical signal that electronics will then be able to interpret. This presentation will show the dependence of the aerogel's signal strength on thickness of stack as well as the PMTs' gain dependence on high voltage.

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